

HUDSON GROUP, LLC
Scotty Lake Coalbed Natural Gas Pilot Project
Plan of Development and Master Field Permit
Sweetwater County, Wyoming

TYPICAL DRILLING PROGNOSIS

1. ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS

The proposed Scotty Lake Coal Bed Natural Gas (CBNG) Pilot Project will test the productive potential of coals in the Fort Union Fm at varying depths across the project area. Please refer to each individual Application for Permit to Drill (APD) for site specific geologic information.

2. ESTIMATED DEPTHS OF ANTICIPATED WATER, OIL, GAS OR MINERAL FORMATIONS

As indicated above, the Scotty Lake CBNG Pilot Project will test the productive potential of the Fort Union Fm at varying depths across the project area. No other potentially productive formations are anticipated between surface and total depth. Please refer to each individual Application for Permit to Drill (APD) for site specific geologic information.

Any shallow water zones encountered will be adequately protected and reported. All potentially productive hydrocarbon zones will be cemented off.

3. PRESSURE CONTROL EQUIPMENT - Schematic Attached

A. Type: Double Gate Hydraulic Blow-Out Preventer (BOP) equipped as follows:

1. One (1) blind ram (above).
2. One (1) pipe ram (below).
3. Kill line (2-inch minimum).
4. One (1) kill line valve (2-inch minimum).
5. One (1) choke line valve.
6. Two (2) adjustable chokes (2-inch minimum).
7. Upper kelly cock valve with handle available.
8. Full opening internal blowout preventer or drill pipe safety valve able to fit all connections.
9. 2-inch (minimum) choke line.
10. Fill-up line above the uppermost preventer.

B. Pressure Rating: 2,000 psi

C. Testing Procedure:

At a minimum, the BOP, choke manifold, and related equipment will be pressure tested to the approved working pressure of the BOP stack (if isolated from the surface casing by a test plug) or to 70% of the internal yield strength of the surface casing (if the BOP is not isolated from the casing by a test plug). Pressure will be maintained for a period of at least 10 minutes or until the requirements of the test are met, whichever is longer.

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3. PRESSURE CONTROL EQUIPMENT

C. Testing Procedure: Continued

At a minimum, the above pressure test will be performed:

1. When the BOP is initially installed;
2. Whenever any seal subject to test pressure is broken;
3. Following related repairs; and
4. At thirty (30) day intervals.

In addition to the above, the pipe and blind rams will be activated each trip, but not more than once each day. All BOP drills and tests will be recorded in the IADC driller's log.

D. Choke Manifold Equipment:

All choke lines will be straight lines unless turns use tee blocks or are targeted with running tees, and will be anchored to prevent whip and vibration.

E. Accumulator:

The accumulator will have sufficient capacity to close all BOP's and retain 200 psi above precharge. Nitrogen bottles that meet the manufacturer's specifications will be used as the backup to the required independent power source. The accumulator precharge pressure test will be conducted prior to connecting the closing unit to the BOP stack and at least once every six (6) months thereafter. The accumulator pressure will be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limits specified in *Onshore Oil and Gas Order Number 2*.

A manual locking device (i.e., hand wheels) or automatic locking device will be installed on all systems of 2M or greater. A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will be maintained in the open position and will be closed only when the power source for the accumulator system is inoperative.

F. Miscellaneous Information:

The Blow-Out Preventer and related pressure control equipment will be installed, tested and maintained in compliance with the specifications in and requirements of *Onshore Oil & Gas Order Number 2*.

4. THE PROPOSED CASING AND CEMENTING PROGRAM

Hudson Group, LLC proposes to test the potential of interbedded coals in the Fort Union Fm for natural gas production. Actual total depths will vary from well to well and will be reported in each individual Application for Permit to Drill.

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4. THE PROPOSED CASING AND CEMENTING PROGRAM - Continued

A. Casing Program: All New

Hole Size	Casing Size	Wt./Ft.	Grade	Joint	Depth Set
12.000"	8.625"	20.0#	J-55	ST&C	0 - 450'
7.875"	5.500"	15.5#	J-55	LT&C	0 - Total Depth

The surface casing will have centralizers on the bottom three (3) joints of casing, with a minimum of one (1) centralizer per joint starting with the shoe joint.

Casing string(s) will be pressure tested to 0.22 psi/foot of casing string length or 1500 psi, whichever is greater (not to exceed 70% of the internal yield strength of the casing), after cementing and prior to drilling out from under the casing shoe.

B. Cementing Program:

The surface casing will be cemented back to surface with approximately 160 sx of Halliburton "Lite" cement mixed at 12.4 ppg (yield = 1.97 ft³/sx). The 5.500" production casing string will be cemented with Class "G" cement mixed at 14.5 ppg (yield = 1.15 ft³/sx). Actual cement volumes may vary due to variations in the actual hole gauge and will be determined by running a caliper log on the drilled hole prior to cementing. Approximate cement volumes will be provided in each individual Application for Permit to Drill with cement circulated to a minimum of 200' above the top of the shallowest coal in the Fort Union Fm.

All waiting on cement (WOC) times will be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. MUD PROGRAM - Visual Monitoring

Interval	Mud Type	Weight	Viscosity	Fluid Loss
Surface to 3000'	Fresh Water/Gel	8.2 - 8.6	26 - 30	No Control
3000' to Total Depth	LSND w/Polymer Sweeps	8.6 - 9.2	28 - 40	No Control

Sufficient mud material(s) to maintain mud properties, control lost circulation and contain a blowout will be available at the well site during drilling operations.

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6. EVALUATION PROGRAM - Continued

Logs : DIL : from Total Depth to Surface.
FDC/GR/CAL-GR : from Total Depth to 2000' *.

DST's : Formation test(s) are possible in the Fort Union Fm. Additional tests will be run as warranted by logs and/or shows.

Cores : Cores are possible in the Fort Union Fm. Please refer to each individual Application for Permit to Drill for more specific information in this regard.

* Pull Gamma Ray Log Back to Surface

The evaluation program may change at the discretion of the well site geologist, with prior approval from the Authorized Officer, Rawlins Field Office, Bureau of Land Management.

Stimulation : No stimulation or frac treatment has been formulated for this test at this time. The drill site, as approved, will be of sufficient size to accommodate all completion activities.

Whether each well is completed as a dry hole or as a producer, *Well Completion and Recompletion Report and Log* (form #3160-4) will be submitted to the Rawlins Field Office not later than thirty (30) days after the completion of each individual well or after completion of operations being performed, in accordance with 43 CFR 3164.

Two (2) copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with form #3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the Authorized Officer, Rawlins Field Office, Bureau of Land Management, P.O. Box 2407, Rawlins, Wyoming 82301-2407, Telephone: 307-328-4200.

7. ABNORMAL CONDITIONS

No abnormal temperatures or pressures are anticipated. No H₂S has been encountered in or known to exist from previous wells drilled to similar depths in the general area.

Maximum anticipated bottom hole pressure in the Scotty Lake CBNG Pilot Project area equals approximately 2,300 psi (calculated at 0.50 psi/foot for the deepest well currently drilled or proposed) and maximum anticipated surface pressure equals approximately 1,288 psi (bottom hole pressure minus the pressure of a partially evacuated hole calculated at 0.22 psi/foot) for the deepest well currently drilled/proposed in the Scotty Lake CBNG Pilot Project area.

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8. ANTICIPATED STARTING DATES AND NOTIFICATION OF OPERATIONS

A. Anticipated Starting Dates:

Anticipated Commencement Date : September 15, 2004
Drilling Days : Approximately 14 Days per Well
Completion Days : Approximately 14 Days per Well

B. Notification of Operations:

Bureau of Land Management
Rawlins Field Office
P.O. Box 2407
Rawlins, Wyoming 82301-2407
Telephone: 307-328-4200

Contacts for the Rawlins Field Office are:

<u>Contact Title</u>	<u>Contact Name</u>	<u>Work Phone</u>	<u>Home Phone</u>
Petroleum Engineer	Bob Hartman	307-328-4254	307-321-3439
Assistant Field Manager	Clare Miller	307-328-4245	307-324-2372
Petroleum Technician	Cole Thomas	307-328-4249	307-328-1901
Petroleum Technician	Chuck Ross	307-328-4230	307-324-9123
Petroleum Technician	Bill Ashline	307-328-4263	307-324-6355
Petroleum Technician	Bryan Hurst	307-328-4277	307-324-5066
Natural Resource Specialist	John Ahlbrandt	307-328-4223	307-328-1808

Alternate Petroleum Engineer Contact if unable to reach Bob Hartman:

<u>Office</u>	<u>Contact Name</u>	<u>Work Phone</u>	<u>Home Phone</u>
Lander Field Office	Stuart Cerovski	307-332-7822	307-332-2408

C. General Conditions of Approval for Each Individual Well:

1. All lease and/or unit operations are to be conducted in such a manner to ensure full compliance with the applicable laws, regulations (43 CFR, Part 3160), Onshore Orders, Notices to Lessees, and the approved plan of operations.

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8. ANTICIPATED STARTING DATES AND NOTIFICATION OF OPERATIONS

C. General Conditions of Approval for Each Individual Well: Continued

2. The spud date will be reported orally to the Rawlins Field Office **24 HOURS PRIOR TO SPUDDING**, unless otherwise required in the site specific conditions of approval.
3. All wells, whether drilling, producing, suspended or abandoned shall be identified in accordance with 43 CFR 3162.6. There shall be a sign or marker with the name of the operator, the lease serial number, the well number and the surveyed description of the well.
4. In accordance with *Onshore Oil & Gas Order Number 1*, this well will be reported on MMS form #3160-6, *Monthly Report of Operations and Production*, starting with the month in which operations commence and continuing each month until the well is physically plugged and abandoned. This report will be filed directly with the Royalty Management Program, Minerals Management Service, P.O. Box 17110, Denver, Colorado 80217.
5. All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in NTL-3A will be reported to the Rawlins Field Office. Major events will be reported verbally within twenty-four (24) hours and will be followed with a written report within fifteen (15) days. Other than major events will be reported in writing within fifteen (15) days. Minor events will be reported on the *Monthly Report of Operations and Production* (form #3160-6)
6. No well abandonment operations will be commenced without the prior approval of the Authorized Officer. In the case of newly-drilled dry holes or failures, and in emergency situations, oral approval will be obtained from the Field Office Petroleum Engineer. A *Notice of Intention to Abandon* (form #3160-5) will be filed with the Authorized Officer within fifteen (15) days following the granting of oral approval to plug and abandon.
7. Upon completion of approved plugging, a regulation marker will be erected in accordance with 43 CFR 3162.6. The following information will be permanently placed on the marker with a plate, cap, or beaded-on with a welding torch: Company Name, Well Name and Number, Location by Quarter/Quarter, Section, Township, Range, and the Federal Lease Number.
8. A *Subsequent Report of Abandonment* (form #3160-5) will be submitted within thirty (30) days following the actual plugging of the well bore. This report will indicate where plugs were placed and the current status of surface restoration operations. If surface restoration has not been completed at that time, a follow-up report on form #3160-5 will be filed when all surface restoration work has been completed and the location is considered ready for final inspection. If the location is on private surface, a *Landowner Acceptance of Reclamation* letter will be attached to this "Sundry Notice".

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8. ANTICIPATED STARTING DATES AND NOTIFICATION OF OPERATIONS

C. General Conditions of Approval for Each Individual Well: Continued

9. Pursuant to NTL-4A, lessees and operators are authorized to vent/flare gas during initial well evaluation tests, not exceeding a period of thirty (30) days or the production of fifty (50) MMCF of gas, whichever occurs first. An application must be filed with the Authorized Officer, and approval received, for any venting/flaring of gas beyond the initial thirty (30) day or otherwise authorized test period.
10. Not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than ninety (90) days, the operator shall notify the Authorized Officer by letter or sundry notice, of the date on which such production has begun or resumed. The notification shall provide at a minimum, the following informational items:
 - a. Operator name, address, and telephone number
 - b. Well name and number
 - c. Well location “¼, ¼, Section, Township, Range, P.M.”
 - d. Date well was placed in a producing status
 - e. The nature of the wells production (i.e., crude oil, casing gas, or natural gas and entrained liquid hydrocarbons).
 - f. The OCS, Federal or Indian lease prefix and number on which the well is located. Otherwise, the non-federal or non-Indian land category (i.e.: state or private).
 - g. As appropriate, the communitization agreement number, the unit agreement name, number and participating area name.
11. Within sixty (60) days following construction of a new tank battery, a site facility diagram of the battery showing actual conditions and piping must be submitted to the Authorized Officer. Facility diagrams shall be filed within sixty (60) days after existing facilities are modified. For complete information as to what is required on these diagrams, please refer to 43 CFR 3162.7-4(d).
12. Pursuant to *Onshore Oil & Gas Order Number 1*, lessees and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in such a manner which conforms with applicable federal laws and regulations and with state and local laws and regulations to the extent that such state and local laws are applicable to operations on federal and Indian lands.

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TYPICAL MULTI-POINT SURFACE USE & OPERATIONS PLAN
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1. EXISTING ROADS - Refer to Maps “A” and “B”

- A. Each proposed well site is staked and two (2) 200-foot reference stakes are present.
- B. Specific information describing the proposed access to each individual well location from the community of Wamsutter, Wyoming will be contained in the Application for Permit to Drill (APD) submitted for each individual CBNG well included within the Scotty Lake CBNG Pilot Project Plan of Development.
- C. Access roads - refer to Maps “A” and “B” in each individual APD.
- D. Access roads within a one (1) mile radius - refer to Map “B”.
- E. Existing roads will be maintained in the same or better condition as existed prior to the commencement of operations and said maintenance will continue until final abandonment and reclamation of wells drilled and completed in conjunction with the Scotty Lake CBNG Pilot Project Plan of Development.

2. PLANNED ACCESS ROADS

Each individual APD will contain site-specific information concerning the construction standard(s) proposed for implementation on each segment of the access road route required for access to the well location. Access roads constructed in the Scotty Lake CBNG Pilot Project area will be constructed in accordance with the road construction guidelines outlined below.

- A. Width - fourteen (14) foot running surface with a sixteen (16) foot subgrade, crowned and ditched for both drilling and completion operations.
- B. Construction standard - access roads will be constructed (or reconstructed as appropriate) in accordance with roading guidelines established for oil & gas exploration and development activities as referenced in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Third Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

Access roads will be designed and constructed to meet the standards of the anticipated traffic flow and all-weather requirements. Construction will include ditching, draining, graveling, crowning, and capping the roadbed as necessary to provide a well constructed and safe roadway. A typical road design is presented in Attachment “A” which provides information concerning minimum standards for road construction associated with federally administered projects.

Approximately six (6) inches of topsoil will be stripped from the new construction portion of each primary access road route prior to performing any further construction activities thereon.

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2. PLANNED ACCESS ROADS - Continued

- B. Construction standard - if soils along primary access road routes are dry during reconstruction, water will be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion.
- C. Maximum grade - please refer to the individual APD's for specific information concerning maximum grade(s) anticipated on/along each proposed access road route.
- D. Turnouts - turnouts will be constructed along proposed access road routes as necessary or required to allow for the safe passage of traffic. These turnouts will be constructed in accordance with roading guidelines established for oil and gas exploration and development activities as referenced in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Third Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.
- E. Drainage design - primary access roads will be upgraded and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. These roads will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road route.
- F. Culverts, cuts and fills - culverts will be installed on/along all access roads as necessary or required by the Authorized Officer. Please refer to each individual APD for specific information regarding the need for culverts on/along the proposed access road route.

Any required culverts will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Third Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction. Attachment "B" presents a typical design for culvert installation on those road construction projects subject to federal jurisdiction

Please refer to each individual APD for specific information regarding cuts and/or fills anticipated on/along the proposed access road route.

- G. Surfacing material - access roads will be surfaced to an average minimum depth (after compaction) of four (4) inches with two (2) inch minus pit run gravel or crushed rock purchased from a local contractor having a permitted source of materials within the general area. These surfacing materials will be installed at the discretion/requirement of the Authorized Officer, Bureau of Land Management.
- H. Gates, cattleguards or fence cuts - gates, cattleguards, and/or fence cuts will be installed on/along each proposed access road route as necessary to provide reasonable access to each individual well location. Where required, these cattleguards will be installed in accordance with roading guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Third Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

Please refer to each individual APD for specific information regarding the need for gates, cattleguards or fence cuts on/along the proposed access road routes.

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2. PLANNED ACCESS ROADS - Continued

- I. Road maintenance - access road surface(s) and shoulders will be kept in a safe and useable condition and will be maintained in accordance with the original construction standards. All drainage ditches and culverts will be kept clear and free-flowing, and will also be maintained in accordance with the original construction standards.

Access road rights-of-way will be kept free of trash during all operations.

- J. The proposed access road route to each individual well location will be centerline staked prior to conducting the individual on-site inspections.

3. LOCATION OF EXISTING WELLS WITHIN A ONE-MILE RADIUS OF THE SCOTTY LAKE CBNG PILOT PROJECT AREA

- A. Water wells - SW¹/₄SE¹/₄, Section 13, T26N, R97W.
NW¹/₄SE¹/₄, Section 24, T26N, R97W

see Item #3F (below) for existing CBNG wells.
- B. Abandoned wells - NW¹/₄SW¹/₄, Section 17, T26N, R96W.
SW¹/₄SE¹/₄, Section 21, T26N, R96W.
SE¹/₄NW¹/₄, Section 28, T26N, R96W.
SW¹/₄NE¹/₄, Section 13, T26N, R97W.
SW¹/₄NE¹/₄, Section 25, T26N, R97W.
- C. Temporarily abandoned wells - none known.
- D. Disposal wells - none known.
- E. Drilling wells - none known.
- F. Producing wells - NW¹/₄SW¹/₄, Section 18, T26N, R96W.¹
SW¹/₄NW¹/₄, Section 19, T26N, R96W.¹
C SE¹/₄, Section 13, T26N, R97W.¹
NW¹/₄SE¹/₄, Section 23, T26N, R97W.¹
NW¹/₄SE¹/₄, Section 24, T26N, R97W.¹
- G. Shut-in wells - none known.
- H. Injection wells - none known.
- I. Monitoring wells - none known.

¹ - Coal bed natural gas wells previously drilled by Hudson Group, LLC.

SOURCE: WOGCC computerized well files accessible via the Internet.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY HUDSON GROUP, LLC WITHIN A ONE (1) MILE RADIUS

A. Existing Facilities

1. Tank batteries - none known.

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4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY HUDSON GROUP, LLC WITHIN A ONE (1) MILE RADIUS

A. Existing Facilities - Continued

2. Production facilities - NW $\frac{1}{4}$ SW $\frac{1}{4}$, Section 18, T26N, R96W.
SW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 19, T26N, R96W.
C SE $\frac{1}{4}$, Section 13, T26N, R97W.
NW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 23, T26N, R97W.
NW $\frac{1}{4}$ SE $\frac{1}{4}$, Section 24, T26N, R97W.
3. Oil gathering lines - none known.
4. Gas gathering lines - same as Item #4A2, above.

B. New Facilities Contemplated

1. All production facilities will be located on the disturbed portion of the well pad and at a minimum of fifteen (15) feet from the toe of the back slope.
2. Production facilities will require a working area approximately 150' X 10' in size. A diagram showing the proposed production facility layout will be submitted to the Authorized Officer via *Sundry Notice* (form #3160-5) for approval prior to commencement of installation operations.
3. Production facilities will be accommodated on the disturbed portion of the well pad. Construction materials needed for installation of the production facilities will be obtained from the site; any additional materials needed will be purchased from a local supplier having a permitted source of materials in the area.

A dike will be constructed completely around those production facilities designed to hold fluids (i.e., production tanks, produced water tanks and/or separator). These dikes will be constructed of compacted subsoil, be impervious, hold 110% of the capacity of the largest tank, and be independent of the back cut.

4. Water Gathering and Discharge

Free water produced from each well will be transported from the well head via flowline to a surface discharge point for disposal. A *Permanent Water Management Plan* has been prepared by Hudson Group, LLC and has submitted to the Rawlins Field Office under separate cover (see Appendix D). The outfall of each discharge will be lined with rock (rip-rap) or some other suitable material in order to prevent erosion.

Water produced from wells in close proximity to each other will be routed to a common discharge point to the greatest extent possible in order to minimize the overall number of discharge points required for water disposal within the Scotty Lake CBNG Pilot Project area. Entrained water which is separated from the gas stream will generally be routed to the closest discharge point for disposal. The actual discharge point and method of disposal for each individual well will be determined by the BLM at the time of the on-site inspection.

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4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES OWNED BY HUDSON GROUP, LLC WITHIN A ONE (1) MILE RADIUS

B. New Facilities Contemplated - Continued

5. Gas Gathering and Sales

Gas produced from each well will be transported from the well head via buried flowline to an existing, processing/metering facility where any remaining (entrained) water will be separated from the gas stream via a gas/water separator. The gas will then be metered and introduced into a gas sales line for transportation to market. The gas and water gathering lines will be buried in a common trench directly adjacent to existing access roads to the greatest extent possible to minimize surface disturbances within the field.

6. Pipeline and Flowline Right-of-Ways

Graders will be used whenever possible to construct or clear individual pipeline rights-of-way. Each right-of-way will not be more than twenty-five (25) feet wide [preferably ten (10) feet wide on the soil stockpile side and fifteen (15) feet wide on the working side of the trench] without prior approval from the Authorized Officer, Bureau of Land Management. Right-of-ways constructed for the installation of water discharge lines will be no more than ten (10) feet in total width. Bladed materials will be placed back into the cleared route once construction has been completed. Pipeline construction will not block or change the natural course of any drainage.

7. All permanent [on-site for six (6) months or longer] above-the-ground structures constructed or installed on the well location (including pumping units, tank batteries, etc.) will be painted **Shale Green** (Munsell standard color #5Y 4/2) or another of the standard environmental colors recommended by the Rocky Mountain Five-State Interagency Committee to be selected at the discretion of the Authorized Officer, BLM. The exception being that *Occupational Safety and Health Act* Rules and Regulations will be complied with where special safety colors are required.

- C. We do not anticipate the need to construct a production (emergency) pit on any of the individual well locations.
- D. During drilling and subsequent operations, all equipment and vehicles will be confined to the access road and any additional areas that may be specified in the approved Application for Permit to Drill.
- E. Reclamation of disturbed areas no longer needed for operations will be accomplished by grading, leveling and seeding as recommended by the Authorized Officer, Bureau of Land Management as appropriate.

5. LOCATION AND TYPE OF WATER SUPPLY

- A. Fresh water for use in drilling operations will be obtained from the Picket Lake Unit #1 producing CBNG well and water retention (evaporation) pond located in the NW¹/₄SE¹/₄ of Section 24, Township 26 North, Range 97 West.

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5. LOCATION AND TYPE OF WATER SUPPLY - Continued

- A. Should this source prove to be inadequate, additional water for use in drilling and completion operations would be obtained from existing commercial water wells within the Scotty Lake Unit as follows:

- 1) Picket Lake #40-13 water supply well located in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 13, Township 26 North, Range 97 West, Permit #P145371W; or
- 2) Picket Lake #1 water supply well located in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 24, Township 26 North, Range 97 West, Permit #P135633.

Hudson Group, LLC will obtain all necessary permits for appropriation of surface and/or ground water from the office of the Wyoming State Engineer prior to diversion.

- B. Water would be hauled over existing roads via tank truck from the Picket Lake Unit #1 water retention (evaporation) pond to each proposed point of use. No new road construction would be required on/along the proposed water haul route(s).

Should Hudson Group, LLC utilize either of the two existing water supply wells, water would then be transported via temporary surface pipeline from the source to each proposed point of use. These surface water lines will be laid in the borrow ditch directly adjacent to existing/proposed access road routes to the greatest extent possible. In the event that it is not practical to follow the existing road network, installation of “cross country” pipelines would be accomplished in such a manner as to minimize surface disturbances associated with the installation of said surface line(s).

Access across any off-lease or off-unit federal lands on/along the proposed water haul or surface pipeline route(s) would be secured under a separate right-of-way (ROW) authorization to be issued by the Rawlins Field Office, Bureau of Land Management. Said ROW authorization would typically be issued concurrent with the approval of the individual Application for Permit to Drill for each individual well location proposed hereunder.

- C. Hudson Group, LLC currently has no plans to drill any additional water supply wells in conjunction with the proposed Scotty Lake CBNG Pilot Project.

6. SOURCE OF CONSTRUCTION MATERIALS

- A. Any construction materials (gravel) which may be required for surfacing of the individual drill pads and/or central processing/metering facility sites will be obtained from a private contractor having a previously approved source of materials within the general area. Please refer to Item #2G (page #3) for information regarding those construction materials which may be required for surfacing of the main access roads.
- B. No construction materials will be taken from federal or Indian lands without prior approval from the appropriate Surface Management Agency.

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6. SOURCE OF CONSTRUCTION MATERIALS - Continued

- C. Any construction materials which may be required for surfacing of primary access roads and/or the installation of central processing/metering facilities will be purchased from a local supplier having a permitted source of materials within the general area.
- D. No new access roads for transportation of these construction materials will be required.

7. METHODS OF HANDLING WASTE MATERIALS

- A. Cuttings - the drilled cuttings will be deposited in the reserve pit.
- B. Drilling fluids - including any salts and/or chemicals utilized in the mud system will be contained in the reserve pit. The reserve pit will be designed to prevent the collection of surface runoff and will be constructed entirely in cut on the uphill side of the well location.
- C. Produced fluids - water produced from wells within the Scotty Lake CBNG Pilot Project area will be discharged to the surface as indicated in Item #4B3 (page #7) under existing National Pollutant Discharge Elimination System (NPDES) permits issued by the Wyoming Department of Environmental Quality (WDEQ).

Any spills of oil, gas, salt water or any other potentially hazardous substance will be cleaned up and immediately removed to an approved disposal site.

- D. Sewage - portable, self-contained chemical toilets will be provided on each individual well location for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. Sewage disposal will be in strict accordance with WDEQ rules and regulations regarding sewage treatment and disposal.
- E. Garbage and other waste material - all garbage and non-flammable waste materials will be contained in a self contained, portable dumpster or trash cage to be located on each individual well location. Upon completion of operations (or as needed) the accumulated trash will be hauled off-site to a WDEQ approved sanitary landfill.

No trash will be placed in the reserve pit.

- F. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned up and removed from each individual well location. No potentially adverse materials or substances will be left on these locations.

Any open pits remaining upon conclusion of drilling operations will immediately be fenced with said fencing maintained until such time as the pits have been backfilled.

- G. Hazardous Materials - Hudson Group, LLC maintains a file, per 29 CFR 1910.1200 (g) containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are used during the course of construction, drilling, completion, and production operations for this project.

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7. METHODS OF HANDLING WASTE MATERIALS - Continued

- G. Hazardous Materials - Hazardous materials which may be found at the site include drilling mud and cementing products which are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well

The opportunity for *Superfund Amendments and Reauthorization Act* (SARA) listed Extremely Hazardous Substances (EHS) at the site is generally limited to proprietary treating chemicals. All hazardous and Extremely Hazardous Substances and commercial preparation will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

8. ANCILLARY FACILITIES

None anticipated.

9. WELLSITE LAYOUT

- A. Diagrams specific to each individual well location will be included in each respective Application for Permit to Drill and will include cross-sectional diagrams of the proposed well location as required under *Onshore Oil and Gas Order Number 1*.
- B. No permanent living facilities are planned on those individual well locations to be included in the Scotty Lake CBNG Pilot Project; however, there will be a maximum of three (3) trailers on location during drilling operations which will serve as offices and housing for the mud logger, geologist and toolpusher.
- C. All equipment and vehicles will be confined to those areas subsequently approved (designated) in conjunction with each individual Application for Permit to Drill (e.g., access road, well pad, spoil and topsoil storage areas).
- D. Diagrams showing the proposed production facility layout on each individual well location will be submitted to the Authorized Officer via *Sundry Notice* (form #3160-5) for approval prior to the commencement of installation operations. Please refer to Item #4B2 (page #3) for additional information in this regard.
- E. The reserve pit(s) will be lined with a plastic/vinyl liner in order to prevent drilling water loss through seepage. The liner will have a permeability less than or equal to 1×10^{-7} cm/sec, will be chemically compatible with all substances which may be put into the pit and will be installed so that it will not leak. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. The liner will be installed with sufficient bedding (either straw or dirt) to cover any rocks, will overlap the pit walls, extend under the mud tanks, and be covered with dirt and/or rocks to hold it in place.

No trash, scrap pipe, etc. that could puncture the liner will be disposed of in the reserve pit.

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9. WELLSITE LAYOUT - Continued

- F. Prior to the commencement of drilling operations, the reserve pit(s) will be fenced sheep tight on three (3) sides according to the following minimum standards:
1. 32-inch net wire shall be used with two (2) strands of barbed wire on top of (above) the net wire.
 2. The net wire shall be no more than four (4) inches above the ground. The first strand of barbed wire shall be \approx three (3) inches above the net wire. Total height of the fence shall be at least forty-two (42) inches.
 3. Corner posts shall be cemented and/or braced in such a manner to keep the fence tight at all times.
 4. Standard steel, wood, or pipe posts shall be used between the corner braces. The maximum distance between any two (2) posts shall be no greater than sixteen (16) feet.
 5. All wire shall be stretched, by using a stretching device, before it is attached to the corner posts.

The fourth (4th) side of the reserve pit(s) will be fenced immediately upon removal of the drilling rig and the fencing will be maintained until the pit has been backfilled.

- G. Any hydrocarbons on the pit will be removed as soon as possible after drilling operations are completed.

10. PLANS FOR RECLAMATION OF THE SURFACE

- A. Rat and mouse holes (as appropriate) will be backfilled and compacted from bottom to top immediately upon release of the completion rig from the location.
- B. If any oil is on the reserve pit and is not immediately removed after operations cease, the pit containing the oil or other adverse substance(s) will be flagged overhead or covered with wire mesh to protect migrating waterfowl.
- C. Producing Operations:
1. Backfilling, leveling and re-contouring of each individual well location will be undertaken as soon as possible after cessation of drilling and completion operations. Waste and spoil materials will be disposed of immediately upon cessation of drilling and completion activities.
 2. For production, the fill slopes will be reduced from a 1.5:1 slope to a minimum 3:1 slope and the cut slopes will be reduced from a 2:1 slope to a minimum 4:1 slope by pushing the fill material back up into the cut. Please refer to each individual Application for Permit to Drill for more specific information regarding slope reduction and timing of the reclamation activities.
 3. Upon completion of backfilling, leveling and recontouring, all disturbed surfaces (access road and well pad areas) will be scarified to a depth of one (1) foot and the stockpiled topsoil will be evenly redistributed to a depth of six (6) inches over the reclaimed area(s).

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10. PLANS FOR RECLAMATION OF THE SURFACE

C. Producing Operations: Continued

4. Prior to commencement of seeding operations, the seedbed will be prepared by disking on the contour to a depth of four (4) to six (6) inches, leaving no depressions that would trap water or form ponds. All disturbed surfaces (including the access road and well pad areas) will be reseeded using the seed mixture identified below (or a different mixture to be recommended by BLM's Authorized Officer as appropriate).

Species	Pounds PLS/Acre ¹
Western wheatgrass	5.0
Needleandthread grass	3.0
Indian ricegrass	3.0
Bottlebrush squirreltail	3.0
Gardner's saltbush	2.0

¹ Pounds of Pure Live Seed per Acre.

5. Seed will be drilled on the contour with a seed drill equipped with a depth regulator in order to ensure even depths of planting. Seed will be planted between one-quarter (1/4) to one-half (1/2) inches deep. Where drilling is not possible (too steep or rocky), hand broadcast the seed at double the rate indicated above and rake or chain the area to cover the broadcast seed.
6. Fall seeding will be completed after September 1st and prior to ground frost. If applicable, spring seeding will be completed after the frost has left the ground and prior to June 15th. The seeding will be repeated until a satisfactory stand, as determined by the Authorized Officer, is achieved. The first evaluation of growth will be made following the completion of the first growing season.

D. Pipeline and Flowline Right-of-Ways:

1. Pipeline/flowline trenches will be compacted during backfilling and said trenches will be maintained in order to correct settlement and erosion.
2. Prior to commencement of reseeding activities on/along the reclaimed pipeline/flowline right-of-ways, waterbars will be constructed at least one (1) foot deep, on the contour with approximately two (2) feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars will be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines provided below:

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10. PLANS FOR RECLAMATION OF THE SURFACE

D. Pipeline and Flowline Right-of-Ways: Continued

2. Subsequent waterbars should follow the following general spacing guidelines provided below:

% Slope	Spacing Interval (feet)
2% or <	200'
2% - 4%	100'
4% - 5%	75'
5% or >	50'

3. All disturbed surfaces along pipeline/flowline right-of-ways will be reseeded as recommended in Item #10C3-6, above.

E. Abandoned Well Location:

1. Upon final abandonment of each well location and/or associated facilities, gravel will be removed from the access road surface and well location (as appropriate), water diversion installed as needed, and both the access road and well location will be restored to approximately the original ground contour(s) by pushing the fill material back into the cut and up over the backslope (as applicable).
2. No depressions will be left that would trap water or form ponds. All disturbed surfaces will be reseeded as recommended in Item #10C2-5, above.

11. SURFACE OWNERSHIP

All of the facilities included within the proposed Scotty Lake CBNG Pilot Project area are situated on surface estate which is owned by the United States of America. These public lands are administered in trust by:

Field Manager
Rawlins Field Office
Bureau of Land Management
P.O. Box 2407
Rawlins, Wyoming 82301-2407
Telephone: 307-328-4200

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12. OTHER INFORMATION

A. General Description of the Project Area:

The Scotty Lake CBNG Pilot Project area is situated in an upland area of northeastern Sweetwater County locally known as Cyclone Rim. The overall area is located in the northern portion of the Great Divide Basin, a closed intermountain basin bounded by the Leucite Hills to the west, Delaney Rim to the south, the Wind River Mountains (and Beaver Rim) to the north, and the Sierra Madre Mountain range to the south. More specifically, the project area is located generally north of Red Creek, south of West Alkali Creek, west of the Stratton Lakes, east/southeast of Scotty Lake, and north/northeast of Bastard Butte. This area is classified as a *High Plains Steppe* (cold desert) and is characterized by gently to moderately undulated uplands dissected by numerous ephemeral drainages of Red Creek to the south and West Alkali Creek to the north.

Local flora consists primarily of needleandthread grass, western wheatgrass, prairie junegrass, Indian ricegrass, threadleaf sedge, prickly pear cactus, sagebrush, and yucca. Local fauna consists primarily of mule deer, antelope, coyotes, badgers, skunks, rabbits, raptors, and various smaller vertebrate and invertebrate species.

There are no known threatened or endangered species that would be affected by implementation of operations on any of the wells included within the proposed Scotty Lake CBNG Pilot Project.

B. Surface Use Activities:

Livestock grazing is the primary surface use within the area encompassed by the Scotty Lake CBNG Pilot Project.

C. Proximity of Water, Occupied Dwellings, Archaeological, Historical or Cultural Sites:

1. The closest source of semi-permanent water in the project area is Red Creek, which is located approximately five (5) miles to the southwest of the Scotty Lake CBNG Pilot Project area.
2. There are no occupied dwellings with a twenty (20) mile radius of the proposed project area.
3. Hudson Group, LLC will be responsible for informing all persons associated with this project that they will be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site(s). If archaeological, historical or vertebrate fossil materials are discovered, Hudson Group, LLC will suspend all operations that further disturb such materials and immediately contact the Authorized Officer. Operations will not resume until written authorization to proceed is issued by the Authorized Officer.

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12. OTHER INFORMATION - Continued

C. Proximity of Water, Occupied Dwellings, Archaeological, Historical or Cultural Sites:

3. Within five (5) working days the Authorized Officer will evaluate the discovery and inform Hudson Group, LLC of actions that will be necessary to prevent loss of significant cultural or scientific values.

Hudson Group, LLC will be responsible for the cost of any mitigation required by the Authorized Officer. The Authorized Officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, Hudson Group, LLC will be allowed to resume operations.

D. Additional Requirements for Operations on Lands Administered by the Bureau of Land Management:

1. Hudson Group, LLC will be responsible for weed control on disturbed areas within the exterior limits of this permit and will consult with the Authorized Officer and/or local authorities for acceptable weed control measures.

A “*Pesticide Use Proposal*” (form #WY-04-9222-1) and pesticide label will be submitted by Hudson Group, LLC to the Authorized Officer no later than December 1st for use during the following spring/summer period.

2. As indicated in Item #4B3, a comprehensive *Permanent Water Management Plan* is being prepared for the proposed Scotty Lake CBNG Pilot Project and will be submitted under separate cover for review and subsequent approval (see Appendix D).

13. LESSEE’S OR OPERATOR’S REPRESENTATIVE AND CERTIFICATION

Representative

Kirk W. Hudson, Petroleum Engineer
Hudson Group, LLC
330 South Center, Suite 307
Casper, Wyoming 82601
Telephone: 307-237-3083

Certification

All lease and/or unit operations will be conducted in such a manner that full compliance is made with all applicable laws, regulations, *Onshore Oil & Gas Orders*, the approved plan of operations, and any applicable *Notice to Lessees*.

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13. LESSEE'S OR OPERATOR'S REPRESENTATIVE AND CERTIFICATION

Certification - Continued

Hudson Group, LLC will be fully responsible for the actions of their subcontractors. A copy of these conditions will be furnished to the field representative(s) to ensure compliance. The dirt contractor will be provided with a copy of the Surface Use Plan from each approved Application for Permit to Drill.

Each individual drilling permit will be valid for a period of one (1) year from the date of approval. After permit termination, a new application will be filed for approval for any future operations.

I hereby certify that I, or persons under my direct supervision, have inspected each proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Hudson Group, LLC, their contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Date

Kirk W. Hudson, Petroleum Engineer